

Abstract

When a small perturbation is applied to the plasma dispersion, a small shift of frequency due to correlation occurs. This is justified even for strong coupling, since the effect is proportional to k^2 (k is the wave vector) and it is sufficient to consider the $k \rightarrow 0$ limit. Then by solving the dispersion relations for $\delta\omega$, the shift of frequency due to correlation, at different angles of propagation, we obtain all information needed. The plasma modes in which we are primarily interested are the “whistler” and the “extraordinary” modes. In this work the STLS (Singwi, Tosi, Land, and Sjolander) approximation scheme is used. It is seen that the correlational effects enter only through terms of order k^6 for the whistler mode and terms of order k^2 for the nonresonant situation of the extraordinary mode.